

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Currently amended) A semiconductor temperature detecting circuit comprising:

a first and a second semiconductor temperature sensor;

means for supplying different constant currents to the first and the second semiconductor temperature sensors; and

means for detecting temperature based on a corresponding relationship between a ratio of output voltages of the first and the second semiconductor temperature sensors and the temperature; the means for detecting the temperature comprising:

a voltage dividing circuit for dividing the output voltage of the first semiconductor temperature sensor by a predetermined ratio;

a comparator for inputting the output voltage of the first semiconductor temperature sensor divided by the voltage dividing circuit as a first input and inputting the output voltage of the second semiconductor temperature sensor as a second input; and

a processing circuit for detecting the temperature based on an output of the comparator and the corresponding relationship;

wherein the voltage dividing circuit outputs divided voltages by a plurality of the predetermined ratios and the comparator successively provides the plurality of divided voltages to the first input and successively compares the first input with the second input.

2. (Original) The semiconductor temperature detecting circuit according to Claim 1:

wherein the first and the second semiconductor temperature sensors include respectively bipolar transistors connected in Darlington connection by numbers of stages different from each other on a same semiconductor substrate.

3. Cancelled.

4. Cancelled.

5. Cancelled.

6. Cancelled.

7. Cancelled.

8. (Currently amended) A method of detecting temperature by a semiconductor device comprising the steps of:

providing a first and a second semiconductor temperature sensor;

supplying different constant currents to the first and the second semiconductor temperature sensors;

calculating a corresponding relationship between a ratio of output voltages of the first and the second semiconductor temperature sensors and temperature; and

detecting the temperature based on the corresponding relationship;

the step of providing the first and the second semiconductor temperature sensors includes a step of providing the first and the second semiconductor sensors respectively having bipolar transistors connected in Darlington connection by numbers of stages different from each other on a same semiconductor substrate;

the step of detecting the temperature further comprising the steps of:

dividing the output voltage of the first semiconductor temperature sensor by a predetermined ratio;

comparing the divided output voltage of the first semiconductor temperature sensor as a first input and the output voltage of the second semiconductor temperature sensor as a second input; and

detecting the temperature based on a result of the comparison and the corresponding relationship;

the step of dividing the output voltage of the first semiconductor temperature sensor by the predetermined ratio further comprising the steps of:

dividing the output voltage of the first semiconductor temperature sensor by a plurality of the predetermined ratios; and

successively constituting the first input by the plurality of divided voltages and successively comparing the first input with the second input.

9. Cancelled.

10. Cancelled.

11. Cancelled.

12. Cancelled.